SOLUTIA. *Solutions for a better life.*

May 12, 2014

Ms. Stephanie Linebaugh
U.S. EPA – Region 5
77 West Jackson Blvd (SR-6J)
Chicago, Illinois 60604-3590

RE: Sauget Area 2 Site – October 3, 2002 Unilateral Administrative Order
Groundwater Operable Unit

Dear Stephanie:

Attached, is the December 2013 Quarterly Groundwater Monitoring Event Report.

Any questions, please advise.

Sincerely,

Steven D. Smith
Project Coordinator

cc: Lisa Cundiff – CH2M Hill
Paul Lake – Illinois EPA (2 copies)
Bill Johnson – Solutia

April 30, 2014 Project No.: 063-9678

Mr. Bill Johnson – 2N
Solutia Inc.
575 Maryville Centre Drive
St. Louis, MO 63141

RE: **DECEMBER 2013 QUARTERLY GROUNDWATER MONITORING EVENT**
SAUGET AREA 2 – SITE R, SAUGET, ILLINOIS

Dear Mr. Johnson:

Golder Associates Inc. (Golder) is pleased to submit this letter report to Solutia Inc. (Solutia) summarizing the December 2013 Quarterly Groundwater Monitoring Event at Sauget Area 2 – Site R (Site). At the request of Solutia, Golder conducted the quarterly sampling event at the Site from December 9, 2013 through December 12, 2013. The work included the collection of groundwater samples from 11 of the 12 monitoring wells in accordance with the Field Sampling Plan (FSP; URS, 2003). This letter summarizes the work performed during the quarterly event and includes Detection Summary Tables (Appendix A) and the Data Validation Report (Appendix B). The Lenexa, Kansas and St. Rose, Louisiana locations of Pace Analytical Services, Inc. (Pace Analytical) performed analytical testing of the groundwater samples. Laboratory reports are not included in this letter report. Laboratory reports were forwarded directly from Pace Analytical to Solutia.

GROUNDWATER SAMPLING

Groundwater samples were collected from four monitoring well clusters. Each well cluster consists of three two-inch diameter wells, with one well screened in the Shallow Hydrogeologic Unit, one well screened in the Middle Hydrogeologic Unit, and one well screened in the Deep Hydrogeologic Unit. Groundwater was purged and sampled from 11 of the 12 wells with a centrifugal positive pressure pump and dedicated polyethylene tubing. A groundwater sample was not collected for well BWMW-4S because the well was dry, therefore sufficient water was not available for sample collection. Field measurements of pH, specific conductivity, turbidity, and temperature were recorded for all groundwater samples. Purging continued until the turbidity reached or fell below five nephelometric turbidity units (NTUs), or stabilization of field parameters was achieved for one hour, whichever occurred first. Prior to the purging and sampling of the monitoring wells, a synoptic round of water level measurements of the 12 wells was completed.

Groundwater samples were collected directly into laboratory-provided, pre-preserved sample bottles and packed on-Site following chain-of-custody protocol. The following laboratory tests were requested for the groundwater samples and associated quality assurance/quality control (QA/QC) samples:

- Volatile Organic Compounds (United States Environmental Protection Agency - USEPA Method 8260B)
- Semi-Volatile Organic Compounds (USEPA Method 8270C)
- Organochlorine Pesticides (USEPA Method 8081A)
- Chlorinated Herbicides (USEPA Method 8151A)
- Metals (USEPA Method 6010B/7470A)

Golder Associates Inc.
820 S. Main Street, Suite 100
St. Charles, MO 63301 USA
Tel: (636) 724-9191 Fax: (636) 724-9323 www.golder.com

- Total Organic Carbon (SW846 Method 9060/SM 5310C)
- Total Dissolved Solids (USEPA Method 160 1/SM 2540C)

After collection, the groundwater samples were delivered to the Pace Analytical Service Center in Florissant, Missouri. The samples to be analyzed for volatile organic compounds, semi-volatile organic compounds, metals, total organic compounds, total dissolved solids, and general chemistry parameters were transported to the Lenexa, Kansas laboratory via courier. The samples to be analyzed for chlorinated pesticides were shipped for next day delivery to the St. Rose, Louisiana facility by the Pace Analytical Service Center in Florissant, Missouri. The samples to be analyzed for chlorinated herbicides were shipped for next day delivery to the TestAmerica Savannah, Georgia facility by the Pace Analytical Service Center in Florissant, Missouri

Groundwater samples were designated by the well number QA/QC samples consisted of two field duplicates (DUP-1 and DUP-2) collected at BWMW-3M and BWMW-1M, respectively, a matrix spike and matrix spike duplicate (MS/MSD) collected at BWMW-3D, two rinsate blanks (RB-1 and RB-2) collected following the collection of samples at BWMW-3S and BWMW-1S, two field blanks (FB-1 and FB-2), and two trip blanks Level III data validation was performed on all the analytical data packages, and Level IV data validation was performed on ten percent of the analytical data packages Some analytical data were qualified; however, no data were rejected

Sampling equipment was decontaminated prior to mobilizing to the Site, between sample locations, and prior to demobilizing from the Site Non-dedicated sampling equipment was decontaminated between samples with non-phosphatic detergent solution and a potable water sprayer. Purged groundwater and decontamination water were containerized in an on-Site vertical storage poly-tank.

Work was performed in general accordance with the January 31, 2003 Sauget Area 2 Groundwater Migration Control System FSP and Quality Assurance Project Plan

Please contact us if you have any questions about the work or require additional information

Sincerely,

GOLDER ASSOCIATES INC.

Amanda W Derhake, Ph D , P E
Senior Project Environmental Engineer

Mark N. Haddock, R.G., P.E
Associate, Senior Geological Engineer

Attachments
Appendix A – Detection Summary Tables
Appendix B – Data Validation Report

APPENDIX A

DETECTION SUMMARY TABLES

Table 1
Summary of Validated Groundwater Sample Data - Organics (December 2013 Sampling Event)
Site R Quarterly Groundwater Monitoring
Solutia Inc - Sauget, Illinois

Monitoring Well		BWMW-1S	MDL	BWMW-1M	MDL	BWMW-1D	MDL	BWMW-2S	MDL	BWMW-2M	MDL	BWMW-2D	MDL
Lab Sample ID		60159337016		60159337015		60159337014		60159337013		60159337012		60159337011	
Date Sampled		12/12/2013		12/12/2013		12/12/2013		12/11/2013		12/11/2013		12/11/2013	
Time Sampled		12 40		10 08		10 40		13 23		10 11		11 00	
Volatile Organic Compounds (USEPA Method 8260B)													
Date Prepared													
Date Analyzed		12/17/2013		12/17/2013		12/17/2013		12/17/2013		12/17/2013		12/17/2013	
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
1,1,2-Trichloroethane	79-00-5	200 U	200	10 0 U	10 0	10 0 U	10 0	0 40 U	0 40	***9.5 J***	5 0	10 0 U	10 0
Benzene	71-43-2	***4,870***	60 0	***265 J***	3 0	***12.7 J***	3 0	***3.9 J***	0 12	***156 J***	1 5	***749 J***	3 0
Carbon disulfide	75-15-0	120 U	120	6 0 U	6 0	6 0 U	6 0	5 0 U	0 24	3 0 U	3 0	6 0 U	6 0
Chlorobenzene	108-90-7	***110,000***	210	***2,320***	10 5	***4,770***	10 5	***166***	0 42	***1,560***	5 2	***4,150***	10 5
Chloromethane	74-87-3	80 0 U	80 0	4 0 U	4 0	4 0 U	4 0	0 16 U	0 16	2 0 U	2 0	4 0 U	4 0
cis-1,2-Dichloroethene	156-59-2	80 0 U	80 0	4 0 U	4 0	4 0 U	4.0	0 16 U	0 16	2 0 U	2 0	4 0 U	4 0
Ethylbenzene	100-41-4	180 U	180	9.0 U	9 0	9 0 U	9 0	0.36 U	0 36	***8.7 J***	4 5	***84 9***	9 0
Methylene Chloride	75-09-2	150 U	150	***13.9 J***	7 5	***12 9 J***	7 5	1 0 U	0 30	***7 3 J***	3 8	7 5 U	7 5
Toluene	108-88-3	170 U	170	8 5 U	8 5	8 5 U	8 5	0 34 U	0 34	4 2 U	4 2	***40.4 J***	8 5
Vinyl chloride	75-01-4	130 U	130	6 5 U	6 5	6 5 U	6 5	0 26 U	0 26	***9 9 J***	3 2	***12.5 J***	6 5
Xylenes, Total	1330-20-7	420 U	420	21 0 U	21 0	21 0 U	21 0	0 84 U	0 84	10 5 U	10 5	***242***	21 0
Semi-Volatile Organic Compounds (USEPA Method 8270C)													
Date Prepared		12/18/2013		12/18/2013		12/18/2013		12/18/2013		12/18/2013		12/18/2013	
Date Analyzed		12/26/2013		12/26/2013		12/26/2013		12/26/2013		12/27/2013		12/27/2013	
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
1,2-Dichlorobenzene	95-50-1	***2 5 J***	0 55	0 55 U	0 55	***2 6 J***	0 55	***2.5 J***	0.55	***4.1 J***	0 55	***64 9 J***	5 5
1,3-Dichlorobenzene	541-73-1	0 94 U	0 94	***1.7 J***	0 94	0 94 U	0 94	0 94 U	0 94	***5 4 J***	0 94	***21 J***	9 4
1,4-Dichlorobenzene	106-46-7	***6.3 J***	0 69	***8 5 J***	0 69	***8 4 J***	0 69	***1.9 J***	0 69	***48 1***	0 69	***263 JD***	6 9
2-Chlorophenol	95-57-8	***102 D***	1.9	***2.0 J***	0 93	0.93 U	0 93	0 93 U	0 93	***3.2 J***	0 93	9 3 U	9 3
2-Methylphenol	95-48-7	***1.4 J***	0 88	0 88 U	0.88	0 88 U	0 88	0 88 U	0 88	0 88 U	0 88	8 8 U	8 8
3 & 4 Methylphenol	15831-10-4	***2.8 J***	0 78	0 78 U	0 78	0 78 U	0 78	0 78 U	0 78	0 78 U	0 78	7 8 U	7 8
4-Chloroaniline	106-47-8	***103 D***	1 1	***184 D***	2 8	***3.6 J***	0 56	***45.6***	0 56	***6180 D***	56 0	***37,600 JD***	280
Naphthalene	91-20-3	0 58 U	0 58	0.58 U	0 58	0 58 U	0 58	0 58 U	0 58	***9.0 J***	0 58	***98.7 J***	5 8
Phenol	108-95-2	***10 6***	0 51	0 51 U	0 51	0 51 U	0 51	0 51 U	0 51	0 51 U	0 51	5 1 U	5 1

Parameters not listed were not detected in any samples
Results in ***bold italics*** denote detections
MDL - Method Detection Limit
NS - Not Sampled
Flags and Qualifiers
U - Analyte was not detected at or above the Method Detection Limit (MDL)
J - Result is an estimated value
JP - Result is an estimated value, The lower of the two values is reported when the % difference between the results of two GC columns is greater than 40%
D - Compound analyzed at a dilution

Prepared by LAB Date 1/10/2014
Checked by JSI Date 4/29/2014
Reviewed by AWD Date 4/30/2014

Table 1
Summary of Validated Groundwater Sample Data - Organics (December 2013 Sampling Event)
Site R Quarterly Groundwater Monitoring
Solutia Inc - Sauget, Illinois

Monitoring Well		BWMW-1S	MDL	BWMW-1M	MDL	BWMW-1D	MDL	BWMW-2S	MDL	BWMW-2M	MDL	BWMW-2D	MDL
Lab Sample ID		60159337016		60159337015		60159337014		60159337013		60159337012		60159337011	
Date Sampled		12/12/2013		12/12/2013		12/12/2013		12/11/2013		12/11/2013		12/11/2013	
Time Sampled		12 40		10 08		10 40		13 23		10 11		11 00	
Organochlorine Pesticides (USEPA Method 8081A)													
Date Prepared		12/16/2013		12/16/2013		12/16/2013		12/16/2013		12/16/2013		12/16/2013	
Date Analyzed		12/18/2013		12/18/2013		12/18/2013		12/18/2013		12/18/2013		12/18/2013	
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
Endosulfan I	959-98-8	0 0250 U	0 0250	***0 0423 J***	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	***0 0369 JP***	0 0250
Heptachlor	76-44-8	0 0250 U	0 0250	***0 0272 JP***	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	0 0250 U	0 0250
Heptachlor epoxide	1024-57-3	0 0250 U	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	***0 0262 JP***	0 0250	***0 0274 JP***	0 0250
Chlorinated Herbicides (USEPA Method 8151A)													
Date Prepared		12/16/2013		12/16/2013		12/16/2013		12/16/2013		12/16/2013		12/16/2013	
Date Analyzed		12/18/2013		12/18/2013		12/18/2013		12/18/2013		12/18/2013		12/18/2013	
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
2,4,5-T	93-76-5	0 071 U	0 071	0 070 U	0 070	0 070 U	0 070	0 070 U	0 070	0 070 U	0 070	0 073 U	0 073
2,4-D	94-75-7	***0 54 J***	0 042	0 042 U	0 042	0 042 U	0 042	0 042 U	0 042	0 042 U	0 042	0 044 U	0 044
Dichlorprop	120-36-5	***3 2***	0 17	0 17 U	0 17	0 17 U	0 17	0 17 U	0 17	0 17 U	0 17	0 18 U	0 18
Total Organic Carbon (USEPA Method 9060/SM 5310C)													
Date Analyzed		12/17/2013		12/17/2013		12/17/2013		12/17/2013		12/17/2013		12/17/2013	
Analyte	CAS No.	(mg/L)		(mg/L)		(mg/L)		(mg/L)		(mg/L)		(mg/L)	
Total Organic Carbon (TOC)	7440-44-0	***11 9***	0 50	5 0	0 50	***5 1***	0 50	***11 1***	0 50	***7 7***	0.50	***1 4***	0 50

Parameters not listed were not detected in any samples
Results in ***bold italics*** denote detections
MDL - Method Detection Limit
NS - Not Sampled
Flags and Qualifiers
U - Analyte was not detected at or above the Method Detection Limit (MDL)
J - Result is an estimated value
JP - Result is an estimated value, The lower of the two values is reported when the % difference between the results of two GC columns is greater than 40%
D - Compound analyzed at a dilution

Prepared by LAB Date 1/10/2014
Checked by JSI Date 4/29/2014
Reviewed by AWD Date 4/30/2014

Table 1
Summary of Validated Groundwater Sample Data - Organics (December 2013 Sampling Event)
Site R Quarterly Groundwater Monitoring
Solutia Inc - Sauget, Illinois

Monitoring Well		BWMW-3S	MDL	BWMW-3M	MDL	BWMW-3D	MDL	BWMW-4S	MDL	BWMW-4M	MDL	BWMW-4D	MDL
Lab Sample ID		60159337007		60159337006		60159337005		NS		60159337002		60159337001	
Date Sampled		12/10/2013		12/10/2013		12/10/2013		NS		12/9/2013		12/9/2013	
Time Sampled		12 36		10 30		11 00		NS		12 35		14 05	
Volatile Organic Compounds (USEPA Method 8260B)													
Date Prepared													
Date Analyzed		12/14/2013		12/14/2013		12/14/2013		NS		12/14/2013		12/13/2013	
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
1,1,2-Trichloroethane	79-00-5	1 0 U	1 0	10.0 U	10 0	5 0 U	5 0	NS		1 0 U	1 0	2 0 U	2 0
Benzene	71-43-2	***4.4 J***	0 30	***357***	3 0	***255***	1 5	NS		***1.5 J***	0 30	***13 3***	0 60
Carbon disulfide	75-15-0	*0 60 U*	*0 60*	*6 0 U*	*6 0*	*3 0 U*	*3.0*	NS		*0 60 U*	*0 60*	*1 2 U*	1 2
Chlorobenzene	108-90-7	***153***	1.0	***4,760***	10 5	***3,120***	5 2	NS		***163***	1 0	***1,010***	2 1
Chloromethane	74-87-3	0 40 U	0 40	4 0 U	4 0	2 0 U	2 0	NS		***0 48 J***	0 40	0 80 U	0 80
cis-1,2-Dichloroethene	156-59-2	0 40 U	0 40	4 0 U	4 0	2 0 U	2 0	NS		***1 3 J***	0 40	0 80 U	0 80
Ethylbenzene	100-41-4	0 90 U	0 90	9 0 U	9 0	***7 8 J***	4 5	NS		0 90 U	0 90	1 8 U	1 8
Methylene Chloride	75-09-2	1 0 U	0 75	7 5 U	7 5	***9.6 J***	3 8	NS		***3 9 J***	0 75	1 0 U	1 5
Toluene	108-88-3	***1.1 J***	0 85	8 5 U	8 5	***6.6 J***	4 2	NS		0 85 U	0 85	1 7 U	1 7
Vinyl chloride	75-01-4	0 65 U	0 65	6 5 U	6 5	3 2 U	3 2	NS		0 65 U	0 65	1.3 U	1 3
Xylenes, Total	1330-20-7	2 1 U	2 1	21 0 U	21 0	10 5 U	10 5	NS		2.1 U	2 1	4 2 U	4 2
Semi-Volatile Organic Compounds (USEPA Method 8270C)													
Date Prepared		12/13/2013		12/13/2013		12/13/2013		NS		12/13/2103		12/13/2013	
Date Analyzed		12/16/2013		12/16/2013		12/16/2013		NS		12/16/2013		12/16/2013	
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
1,2-Dichlorobenzene	95-50-1	***1.8 J***	0 55	***1.4 J***	0 55	***123 D***	2 8	NS		***5.3 J***	0 55	***199 D***	5.5
1,3-Dichlorobenzene	541-73-1	0 94 U	0 94	***6 4 J***	0 94	***5.5 J***	0 94	NS		***2 5 J***	0 94	***17.9***	0 94
1,4-Dichlorobenzene	106-46-7	***5.4 J***	0 69	***13 4***	0 69	***89.6***	0 69	NS		***14 6***	0 69	***74.6***	0 69
2-Chlorophenol	95-57-8	0 93 U	0 93	***4.1 J***	0 93	***3.2 J***	0 93	NS		0 93 U	0 93	0 93 U	0 93
2-Methylphenol	95-48-7	0 88 U	0.88	0 88 U	0 88	0 88 U	0 88	NS		0 88 U	0 88	0 88 U	0 88
3 & 4 Methylphenol	15831-10-4	0 78 U	0 78	***5 3 J***	0 78	0 78 U	0 78	NS		0 78 U	0 78	0 78 U	0 78
4-Chloroaniline	106-47-8	20 0 U	0 56	***8,480 D***	56 0	***3,730 D***	56.0	NS		***39 0***	0 56	***381 D***	5 6
Naphthalene	91-20-3	0 58 U	0 58	0 58 U	0 58	***1.7 J***	0 58	NS		0 58 U	0 58	0 58 U	0 58
Phenol	108-95-2	0 51 U	0 51	0 51 U	0 51	0 51 U	0 51	NS		0 51 U	0 51	0 51 U	0 51

Parameters not listed were not detected in any samples
Results in ***bold italics*** denote detections
MDL - Method Detection Limit
NS - Not Sampled
Flags and Qualifiers
U - Analyte was not detected at or above the Method Detection Limit (MDL)
J - Result is an estimated value
JP - Result is an estimated value, The lower of the two values is reported when the % difference between the results of two GC columns is greater than 40%
D - Compound analyzed at a dilution

Prepared by LAB Date 1/10/2014
Checked by JSI Date 4/29/2014
Reviewed by AWD Date 4/30/2014

Table 1
Summary of Validated Groundwater Sample Data - Organics (December 2013 Sampling Event)
Site R Quarterly Groundwater Monitoring
Solutia Inc - Sauget, Illinois

Monitoring Well		BWMW-3S	MDL	BWMW-3M	MDL	BWMW-3D	MDL	BWMW-4S	MDL	BWMW-4M	MDL	BWMW-4D	MDL
Lab Sample ID		60159337007		60159337006		60159337005		NS		60159337002		60159337001	
Date Sampled		12/10/2013		12/10/2013		12/10/2013		NS		12/9/2013		12/9/2013	
Time Sampled		12 36		10 30		11 00		NS		12 35		14 05	
Organochlorine Pesticides (USEPA Method 8081A)													
Date Prepared		12/12/2013		12/16/2013		12/16/2013		NS		12/12/2013		12/12/2013	
Date Analyzed		12/13/2013		12/18/2013		12/18/2013		NS		12/13/2013		12/13/2013	
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
Endosulfan I	959-98-8	0 0250 U	0 0250	0 250 U	0 250	0 250 U	0 250	NS		0 0250 U	0 0250	0 0250 U	0 0250
Heptachlor	76-44-8	0 0250 U	0 0250	0 250 U	0 250	0 250 U	0 250	NS		0 0250 U	0 0250	0.0250 U	0 0250
Heptachlor epoxide	1024-57-3	0 0250 U	0 0250	0.250 U	0 250	0 250 U	0 250	NS		0 0250 U	0 0250	0 0250 U	0 0250
Chlorinated Herbicides (USEPA Method 8151A)													
Date Prepared		12/14/2013		12/13/2013		12/13/2013		NS		12/14/2013		12/14/2013	
Date Analyzed		12/16/2013		12/16/2013		12/16/2013		NS		12/16/2013		12/16/2013	
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
2,4,5-T	93-76-5	0 069 U	0 069	0 068 U	0 068	*0.76*	0 070	NS		0 068 U	0 068	0 074 U	0 074
2,4-D	94-75-7	0 041 U	0 041	0 040 U	0 040	*1.20*	0 042	NS		0 040 U	0 040	0.044 U	0 044
Dichlorprop	120-36-5	0 17 U	0 17	0 16 U	0 16	0 17 U	0 17	NS		0 16 U	0 16	0 18 U	0 18
Total Organic Carbon (USEPA Method 9060/SM 5310C)													
Date Analyzed		12/17/2013		12/17/2013		12/17/2013		NS		12/17/2013		12/17/2013	
Analyte	CAS No.	(mg/L)		(mg/L)		(mg/L)		(mg/L)		(mg/L)		(mg/L)	
Total Organic Carbon (TOC)	7440-44-0	*6 5*	0 50	*7 8*	0 50	*21 8*	1 0	NS		2.7	0 5	3.7	0 50

Parameters not listed were not detected in any samples
Results in ***bold italics*** denote detections
MDL - Method Detection Limit
NS - Not Sampled
Flags and Qualifiers
U - Analyte was not detected at or above the Method Detection Limit (MDL)
J - Result is an estimated value
JP - Result is an estimated value, The lower of the two values is reported when the % difference between the results of two GC columns is greater than 40%
D - Compound analyzed at a dilution

Prepared by LAB Date 1/10/2014
Checked by JSI Date 4/29/2014
Reviewed by AWD Date 4/30/2014

Table 2
Summary of Validated Groundwater Sample Data - Inorganics (December 2013 Sampling Event)
Site R Quarterly Groundwater Monitoring
Solutia Inc - Sauget, Illinois

Monitoring Well		BWMW-1S	MDL	BWMW-1M	MDL	BWMW-1D	MDL	BWMW-2S	MDL	BWMW-2M	MDL	BWMW-2D	MDL
Lab Sample ID		60159337016		60159337015		60159337014		60159337013		60159337012		60159337011	
Date Sampled		12/12/2013		12/12/2013		12/12/2013		12/11/2013		12/11/2013		12/11/2013	
Time Sampled		12 40		10 08		10 40		13 23		10 11		11 00	
Mercury (USEPA Method 7470A)													
Date Prepared		12/20/2013		12/20/2013		12/20/2013		12/20/2013		12/20/2013		12/20/2013	
Date Analyzed		12/20/2013		12/20/2013		12/20/2013		12/20/2013		12/20/2013		12/20/2013	
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
Mercury	7439-97-6	0 14 U	0 14	0 14 U	0 14	0 14 U	0 14	0 14 U	0 14	0 14 U	0 14	0 14 U	0 14
Metals (USEPA Method 6010B)													
Date Prepared		12/18/2013		12/18/2013		12/18/2013		12/18/2013		12/18/2013		12/18/2013	
Date Analyzed		12/26/2013		12/26/2013		12/26/2013		12/26/2013		12/26/2013		12/26/2013	
Analyte	CAS No	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
Arsenic	7440-38-2	***96.0***	4 6	4 6 U	4 6	4 6 U	4 6	4 6 U	4 6	4 6 U	4 6	4 6 U	4 6
Barium	7440-39-3	***268***	0 40	***470***	0 40	***418***	0 40	***220***	0 40	***847***	0 40	***1,850***	0 40
Chromium	7440-47-3	5 0 U	0 62	***1 2 J***	0 62	***7.3***	0 62	***9.1***	0 62	***3.5 J***	0 62	***1.2 J***	0 62
Copper	7440-50-8	2 7 U	2 7	2 7 U	2 7	2 7 U	2 7	2 7 U	2 7	***5 2 J***	2 7	2 7 U	2 7
Lead	7439-92-1	2 4 U	2 4	2 4 U	2 4	2 4 U	2 4	***3 1 J***	2 4	2 4 U	2 4	2 4 U	2 4
Nickel	7440-02-0	***1.8 J***	0 71	***1.3 J***	0 71	***3.9 J***	0 71	***5 0 J***	0 71	***2 8 J***	0 71	***5 6***	0 71
Total Dissolved Solids (USEPA Method 160.1/SM 2540C)													
Date Analyzed		12/17/2013		12/17/2013		12/17/2013		12/17/2013		12/17/2013		12/17/2013	
Analyte	CAS No.	(mg/L)		(mg/L)		(mg/L)		(mg/L)		(mg/L)		(mg/L)	
Total Dissolved Solids (TDS)	-	***1510***	5 0	***909***	5 0	***988***	5 0	***1,410***	5 0	***880***	5 0	***1,610***	5 0

Parameters not listed were not detected in any samples
Results in ***bold italics*** denote detections
MDL - Method Detection Limit
NS - Not Sampled
Flags and Qualifiers
U - Analyte was not detected at or above the Method Detection Limit (MDL)
J - Result is an estimated value

Prepared by LAB Date 1/10/2014
Checked by JSI Date 4/29/2014
Reviewed by AWD Date 4/30/2014

Table 2
Summary of Validated Groundwater Sample Data - Inorganics (December 2013 Sampling Event)
Site R Quarterly Groundwater Monitoring
Soluba Inc - Sauget, Illinois

Monitoring Well		BWMW-3S	MDL	BWMW-3M	MDL	BWMW-3D	MDL	BWMW-4S	MDL	BWMW-4M	MDL	BWMW-4D	MDL
Lab Sample ID		60159337007		60159337006		60159337005		NS		60159337002		60159337001	
Date Sampled		12/10/2013		12/10/2013		12/10/2013		NS		12/9/2013		12/9/2013	
Time Sampled		12 36		10 30		11 00		NS		12 35		14 05	
Mercury (USEPA Method 7470A)													
Date Prepared		12/13/2013		12/13/2013		12/13/2013		NS		12/13/2013		12/13/2013	
Date Analyzed		12/14/2013		12/14/2013		12/14/2013		NS		12/14/2013		12/14/2013	
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
Mercury	7439-97-6	0 14 U	0 14	0 14 U	0 14	0 14 U	0 14	NS		0 14 U	0 14	0 14 U	0 14
Metals (USEPA Method 6010B)													
Date Prepared		12/13/2013		12/13/2013		12/13/2013		NS		12/13/2013		12/13/2013	
Date Analyzed		12/23/2013		12/23/2013		12/23/2013		NS		12/23/2013		12/23/2013	
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
Arsenic	7440-38-2	***5 4*** J	4 6	4 6 U	4 6	4 6 U	4 6	NS		4 6 U	4 6	4 6 U	4 6
Barium	7440-39-3	***311***	0 40	***810***	0 40	***1,190***	0 40	NS		***396***	0 40	***115***	0 40
Chromium	7440-47-3	***1 1*** J	0 62	0 62 U	0 62	0.62 U	0 62	NS		***3.6*** J	0 62	0 62 U	0 62
Copper	7440-50-8	2 7 U	2 7	2 7 U	2 7	2 7 U	2 7	NS		2 7 U	2 7	2 7 U	2 7
Lead	7439-92-1	2 4 U	2.4	2 4 U	2 4	2 4 U	2 4	NS		2 4 U	2 4	2 4 U	2 4
Nickel	7440-02-0	0 71 U	0.71	***3.3*** J	0 71	***2.7*** J	0.71	NS		***3.0*** J	0 71	***0 96*** J	0 71
Total Dissolved Solids (USEPA Method 160.1/SM 2540C)													
Date Analyzed		12/13/2013		12/13/2013		12/13/2013		NS		12/13/2013		12/13/2013	
Analyte	CAS No.	(mg/L)		(mg/L)		(mg/L)		(mg/L)		(mg/L)		(mg/L)	
Total Dissolved Solids (TDS)	-	***1,740***	5 0	***1,330***	5 0	***1,180***	5 0	NS		***713***	5 0	***645***	5 0

Parameters not listed were not detected in any samples
Results in ***bold italics*** denote detections
MDL - Method Detection Limit
NS - Not Sampled
Flags and Qualifiers
U - Analyte was not detected at or above the Method Detection Limit (MDL)
J - Result is an estimated value

Prepared by LAB Date 1/10/2014
Checked by JSI Date 4/29/2014
Reviewed by AWD Date 4/30/2014

Table 3
Summary of Validated Groundwater Sample Data - Organics (December 2013 Sampling Event)
Site R Quarterly Groundwater Monitoring
Solutia Inc - Sauget, Illinois

Monitoring Well		DUP 1	MDL	DUP 2	MDL	RB 1	MDL	RB 2	MDL	FB 1	MDL	FB 2	MDL	Trip Blank	MDL	Trip Blank	MDL
Lab Sample ID		60159337008		60159337020		60159337017		60159337018		60159337009		60159337019		60159337010		60159337021	
Date Sampled		12/10/2013		12/11/2013		12/11/2013		12/12/2013		12/10/2013		12/11/2013		12/10/2013		12/11/2013	
Time Sampled						14 20		13 20		13 00		14 00					
Volatile Organic Compounds (USEPA Method 8260B)																	
Date Analyzed		12/14/2013		12/17/2013		12/17/2013		12/18/2013		12/14/2013		12/17/2013		12/13/2013		12/17/2013	
Analyte	CAS No	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
Acetone	67-64-1	47 0 U	47 0	1 9 U	1 9	1 9 U	1 9	*2 0 J*	1 9	1 9 U	1 9	1 9 U	1 9	1 9 U	1 9	1 9 U	1 9
Benzene	71-43-2	*345*	1 5	*236 D*	0 60	0 060 U	0 060	1 7	0 060	0 060 U	0 060	0 060 U	0 060	0 06 U	0 060	1 0 U	0 060
Carbon disulfide	75-15-0	3 0 U	3 0	*0 29 J*	0 12	*0 12 J*	0 12	0 12 U	0 12	0 12 U	0 12	0 12 U	0 12	0 12 U	0 12	0 12 U	0 12
Chlorobenzene	108-90-7	*4,370*	5,2	*1,780 D*	2 1	*3 7*	0 21	*83 7*	0.21	0 21 U	0 21	0 21 U	0.21	0 21 U	0 21	0.21 U	0.21
Ethylbenzene	100-41-4	4 5 U	4 5	*0 60 J*	0 18	0 18 U	0 18	0 18 U	0 18	0 18 U	0 18	0 18 U	0 18	0 18 U	0 18	0 18 U	0 18
Methylene Chloride	75-09-2	*7 3 J*	3 8	0 15 U	0 15	0 15 U	0 15	0 15 U	0 15	0 15 U	0 15	0 15 U	0 15	*0 28 J*	0 15	*0 49 J*	0 15
Toluene	108-88-3	4.2 U	4.2	*0 36 J*	0 17	0 17 U	0 17	0 17 U	0 17	0 17 U	0 17	0 17 U	0 17	0 17 U	0 17	0 17 U	0 17
Semi-Volatile Organic Compounds (USEPA Method 8270C)																	
Date Prepared		12/13/2013		12/18/2013		12/18/2013		12/18/2013		12/13/2013		12/18/2013					
Date Analyzed		12/16/2013		12/26/2013		12/26/2013		12/26/2013		12/16/2013		12/26/2013					
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)					
1,2-Dichlorobenzene	95-50-1	*1 4 J*	0 55	0 55 U	0 55	0 55 U	0 55	0 55 U	0 55	0 55 U	0 55	0 55 U	0 55				
1 3-Dichlorobenzene	541-73-1	*6 2 J*	0 94	0 94 U	0 94	0 94 U	0 94	0 94 U	0 94	0 94 U	0 94	0 94 U	0 94				
1 4-Dichlorobenzene	106-46-7	*12 6*	0 69	*7 8 J*	0 69	0 69 U	0 69	0 69 U	0 69	0 69 U	0 69	0 69 U	0 69				
2-Chlorophenol	95-57-8	*3.2 J*	0 93	0 93 U	0 93	0 93 U	0 93	0 93 U	0 93	0 93 U	0 93	0 93 U	0 93				
3 & 4 Methylphenol	15831-10-4	*4 9 J*	0 78	0 78 U	0 78	0 78 U	0 78	0 78 U	0 78	0 78 U	0 78	0 78 U	0 78				
4-Bromophenyl phenyl ether	101-55-3	1 3 U	1 3	1 3 U	1 3	*1 7 J*	1 3	1 3 U	1 3	1 3 U	1 3	1 3 U	1 3				
4-Chloroaniline	106-47-8	*7,810 D*	56 0	*175 D*	2 8	0 56 U	0 56	0 56 U	0 56	*19 8 J*	0 56	0 56 U	0 56				
Organochlorine Pesticides (USEPA Method 8081A)																	
Date Prepared		12/16/2013		12/16/2013		12/16/2013		12/16/2013		12/12/2013		12/18/2013					
Date Analyzed		12/18/2013		12/18/2013		12/18/2013		12/18/2013		12/13/2013		12/18/2013					
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)					
beta-BHC	319-85-7	*0 0303 JP*	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	0 0250 U	0 0250				
Endosulfan I	959-98-8	*0 0509 P*	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	0 0250 U	0 0250				
Heptachlor	76-44-8	0 0250 U	0 0250	*0 311 J*	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	0 0250 U	0 0250	0 0250 U	0 0250				
Chlorinated Herbicides (USEPA Method 8151A)																	
Date Prepared		12/13/2013		12/16/2013		12/16/2013		12/16/2013		12/14/2013		12/18/2013					
Date Analyzed		12/16/2013		12/19/2013		12/18/2013		12/16/2013		12/16/2013		12/18/2013					
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)					
Total Organic Carbon (USEPA Method 9060/SM 5310C)																	
Date Analyzed		12/17/2013		12/17/2013		12/17/2013		12/17/2013		12/17/2013		12/17/2013					
Analyte	CAS No.	(mg/L)		(mg/L)		(mg/L)		(mg/L)		(mg/L)		(mg/L)					
Total Organic Carbon (TOC)	7440-44-0	*7 9*	0 50	*4 6*	0 50	0 50 U	0 50	*0 67 J*	0 50	0 50 U	0 50	0 50 U	0 50				

Parameters not listed were not detected in any samples
Results in ***bold italics*** denote detections
MDL - Method Detection Limit
Flags and Qualifiers
U - Analyte was not detected at or above the Method Detection Limit (MDL)
J - Result is an estimated value
JP - Result is an estimated value, The lower of the two values is reported when the % difference between the results of two GC columns is greater than 40%
P - The lower of the two values is reported when the % difference between the results of two GC columns is greater than 40%
D - Compound analyzed at a dilution

Prepared by LAB Date 1/10/2014
Checked by JSI Date 4/29/2014
Reviewed by AWD Date 4/30/2014

Table 4
Summary of Validated Groundwater Sample Data - Inorganics (December 2013 Sampling Event)
Site R Quarterly Groundwater Monitoring
Solutia Inc - Sauget, Illinois

Monitoring Well		DUP 1	MDL	DUP 2	MDL	RB 1	MDL	RB 2	MDL	FB 1	MDL	FB 2	MDL
Lab Sample ID		60159337008		60159337020		60159337017		60159337018		60159337009		60159337019	
Date Sampled		12/10/2013		12/11/2013		12/11/2013		12/12/2013		12/10/2013		12/11/2013	
Time Sampled						14 20		13 20		13 00		14 00	
Mercury (USEPA Method 7470A)													
Date Prepared		12/13/2013		12/20/2013		12/20/2013		12/20/2013		12/13/2013		12/20/2013	
Date Analyzed		12/14/2013		12/20/2013		12/20/2013		12/20/2013		12/14/2013		12/20/2013	
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
Mercury	7439-97-6	0 14 U	0 14	0 14 U	0 14	0 14 U	0.14	0 14 U	0 14	0 14 U	0 14	0 14 U	0 14
Metals (USEPA Method 6010B)													
Date Prepared		12/13/2013		12/18/2013		12/18/2013		12/18/2013		12/13/2013		12/18/2013	
Date Analyzed		12/23/2013		12/26/2013		12/26/2013		12/26/2013		12/23/2013		12/26/2013	
Analyte	CAS No.	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
Arsenic	7440-38-2	*4.6 J*	4 6	4 6 U	4 6	4 6 U	4 6	4 6 U	4 6	4 6 U	4 6	4 6 U	4 6
Barium	7440-39-3	*754*	0 40	*471*	0 40	0 4 U	0 40	0 40 U	0 40	0 40 U	0 40	0 40 U	0 40
Chromium	7440-47-3	0 62 U	0 62	*1 7 J*	0 62	*0 69 J*	0 62	*1 0 J*	0 62	0 62 U	0 62	0 62 U	0 62
Nickel	7440-02-0	*3.2 J*	0 71	*1 3 J*	0 71	0 71 U	0 71	0 71 U	0 71	0 71 U	0 71	0 71 U	0 71
Total Dissolved Solids (USEPA Method 160.1/SM 2540C)													
Date Analyzed		12/13/2013		12/17/2013		12/17/2013		12/17/2013		12/17/2013		12/17/2013	
Analyte	CAS No.	(mg/L)		(mg/L)		(mg/L)		(mg/L)		(mg/L)		(mg/L)	
Total Dissolved Solids (TDS)	-	*1,330*	5 0	*903*	5 0	5 0 U	5 0	*5.0*	5 0	5 0 U	5 0	5 0 U	5 0

Parameters not listed were not detected in any samples
Results in ***bold italics*** denote detections
MDL - Method Detection Limit
Flags and Qualifiers
U - Analyte was not detected at or above the Method Detection Limit (MDL)
J - Result is an estimated value.

Prepared by LAB Date 1/10/2014
Checked by JSI Date 4/29/2014
Reviewed by AWD Date 4/30/2014

APPENDIX B

DATA VALIDATION REPORT

1.0 INTRODUCTION

Golder Associates Inc. (Golder) validated the analytical data for the groundwater samples collected from December 9, 2013 through December 12, 2013 at Solutia Site R in Sauget, Illinois (Site). Samples were collected from a total of eleven (11) of the twelve (12) on-site groundwater monitoring wells Field duplicate samples were collected from wells BWMW-3M and BWMW-1M Two equipment rinsate blanks, two field blanks, and two trip blanks were prepared and shipped for laboratory analysis The samples collected for analysis are summarized in Table 1. The samples were submitted to Pace Analytical Services, Inc. (Pace Analytical) of Florissant, Missouri which shipped the samples to be analyzed for volatile organic compounds, semi-volatile organic compounds, total metals, and general chemistry parameters that night to Lenexa, Kansas via courier. The samples to be analyzed for chlorinated pesticides were shipped for next day delivery to the St. Rose, Louisiana facility by the Pace Analytical Service Center in Florissant, Missouri. The samples to be analyzed for chlorinated herbicides were shipped for next day delivery to the TestAmerica Savannah, Georgia facility by the Pace Analytical Service Center in Florissant, Missouri The samples were placed into one sample delivery group (SDG) by the laboratory. The SDG is 60159337

The samples were collected and analyzed in accordance with the Field Sampling Plan for the Groundwater Migration Control System, Sauget Area 2 Superfund Site (FSP, URS, January 2003) Samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), chlorinated pesticides, chlorinated herbicides, total metals, and general chemistry parameters. The general chemistry parameters were total organic carbon (TOC) and total dissolved solids (TDS). Analytical methods used are from U.S. Environmental Protection Agency (USEPA) document SW-846, Test Methods for Evaluating Solid Waste, Revision 6 contained in Final Update III August 2002 and listed below.

- VOCs were analyzed using Method 8260B Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry
- SVOCs were analyzed by Method 8270C Semi-volatile Organic Compounds by Gas Chromatography/Mass Spectrometry
- Chlorinated Pesticides were analyzed using Method 8081A Organochlorine Pesticides by Gas Chromatography
- Chlorinated Herbicides were analyzed using Method 8151A Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization
- Total metals were analyzed in accordance with Method 6010B Inductively Coupled Plasma-Atomic Emission Spectrometry except for mercury, which was analyzed by Method 7470A, Mercury in Liquid Waste (Manual Cold Vapor Technique)

- The general chemistry parameters were analyzed using standard SW-846 methodologies and EPA methodologies contained in Methods for Chemical Analysis of Water and Wastes, March 1983

Data validation was performed following the general guidelines of Section 9.2 of the Quality Assurance Project Plan for the Groundwater Migration Control System, Sauget Area 2 Superfund Site (QAPP, URS, January 2003) The QAPP specifies that the most recent versions of the national data validation guidelines be used for data review. The following guidelines were generally used:

- USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA-540-R-08-01, June 2008

- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA 540-R-04-004, June 2008

These documents are hereafter referred to as the "functional guidelines" If there was a conflict between the functional guidelines and the quality control criteria specified in the analytical method, the method-specific criteria were used SDG (60159337) was prepared as a Level 4 data report package containing quality control information and raw data.

Data qualifiers are defined in Table 2 Where quality control criteria were met, positive results were not qualified and non-detected results were qualified "U" signifying that the result is below the quantitation limit (organics) or detection limit (inorganics) Where more than one qualifier for a sample result was warranted, the most general qualifier was applied to the results.

Sections 2 through 7 summarize the specific instances where quality control criteria in the functional guidelines were not met Tables 3 through 8 list the specific samples for which qualification occurred As specified in the functional guidelines, if the non-adherence to quality control criteria is slight, professional judgment was used in qualification of the data However, if the non-adherence is significant, qualification and rejection of the data may be necessary.

Following data validation, the qualified data were summarized in tables, which are included in the main body of the report.

2.0 VOLATILE ORGANIC COMPOUNDS

Samples were collected from eleven (11) groundwater monitoring locations and analyzed for VOCs. Field duplicate samples were collected from wells BWMW-3M and BWMW-1M Two equipment rinsate blanks, two field blanks, and two trip blanks were prepared and shipped for laboratory analysis The samples collected for analysis are summarized in Table 1. The samples were submitted to Pace Analytical Services, Inc., were placed into one data package or SDG (60159337), and were prepared and analyzed using SW-846 Method 8260B Samples were validated in general accordance with the functional guidelines. Results of the validation are summarized below.

2.1 Data Quality Objectives

Precision Goals for laboratory and field precision were met.

Accuracy Goals for accuracy were met

Sample Result Verification Sample results were supported in the raw data

Detection Limits The detection limit goals were achieved for analyses, except where dilutions were required due to elevated levels of target/non-target analytes or matrix interference

Completeness. The data packages were complete for requested analyses. Nineteen (19) samples were reviewed in this data set A total of 646 groundwater results were reported of which all were deemed valid. This results in a laboratory completeness of 100%; with an overall completeness of 100%.

2.2 Major Concerns

There were no major concerns that required rejection of data

2.3 Minor Concerns

Identified below are the minor quality control concerns that required qualification of the data Refer to Table 3 for the specific samples affected by each concern

Reported results with a value greater than the method detection limit (MDL) and lower than the reporting limit (RL) were qualified with estimated values (J)

When a compound was detected in a blank (i.e method, field, rinsate) the five times (ten times for common lab contaminants) rule was applied to affected samples. Results greater than the method detection limit and below five or ten times the blank detection were qualified as non-detects (U)

When a sample was analyzed at a dilution, positive affected results were qualified (D/JD).

If the LCS recovery was greater than the upper control limit, then positive sample results for the affected compounds were qualified with estimated values (J)

3.0 SEMI-VOLATILE ORGANIC COMPOUNDS

Samples were collected from eleven (11) groundwater monitoring locations and analyzed for SVOCs Field duplicate samples were collected from wells BWMW-3M and BWMW-1M. Two equipment rinsate blanks and two field blanks were prepared and shipped for laboratory analysis The samples collected for analysis are summarized in Table 1 The samples were submitted to Pace Analytical Services Inc., were placed into one data package or SDG (60159337), and were prepared and analyzed using SW-846 Method 8270C Samples were validated in general accordance with the functional guidelines Results of the validation are summarized below.

3.1 Data Quality Objectives

Precision Goals for laboratory and field precision were met, except where noted below.

Accuracy Goals for accuracy were met, except where noted below.

Sample Result Verification Sample results were supported in the raw data

Detection Limits: The detection limit goals were achieved for analyses, except where dilutions were required due to elevated levels of target analytes or matrix interference

Completeness. The data packages were complete for requested analyses Seventeen (17) samples were reviewed in this data set A total of 1,088 groundwater results were reported of which all were deemed valid This results in a laboratory completeness of 100%, with an overall completeness of 100%

3.2 Major Concerns

There were no major concerns that required rejection of data

3.3 Minor Concerns

Identified below are the minor quality control concerns that required qualification of the data Refer to Table 4 for the specific samples affected by each concern.

Reported results with a value greater than the method detection limit (MDL) and lower than the reporting limit (RL) were qualified with estimated values (J)

If there were two or more surrogate compounds diluted out of a sample, positive affected results were qualified (J).

When a compound was detected in a blank (i e. method, field, rinsate) the five times (ten times for common lab contaminants) rule was applied to affected samples. Results greater than the method detection limit and below five or ten times the blank detection were qualified as non-detects (U).

When a sample was analyzed at a dilution, positive affected results were qualified (D/JD)

4.0 CHLORINATED PESTICIDES

Samples were collected from eleven (11) groundwater monitoring locations and analyzed for chlorinated pesticides Field duplicate samples were collected from wells BWMW-3M and BWMW-1M Two equipment rinsate blanks and two field blanks were prepared and shipped for laboratory analysis The samples collected for analysis are summarized in Table 1. The samples were submitted to Pace Analytical Services, Inc , were placed into one data package or SDG (60159337), and were prepared and analyzed using SW-846 Method 8081 Samples were validated in accordance with the functional guidelines Results of the validation are summarized below

4.1 Data Quality Objectives

Precision Goals for laboratory and field precision were met, except where noted below

Accuracy Goals for accuracy were met, except where noted below.

Sample Result Verification: Sample results were supported in the raw data

Detection Limits The detection limit goals were achieved for analyses, except where dilutions were required due to elevated levels of non-target analytes or matrix interference.

Completeness The data packages were complete for requested analyses. Seventeen (17) samples were reviewed in this data set A total of 357 groundwater results were reported of which all were deemed valid This results in a laboratory completeness of 100%; with an overall completeness of 100%

4.2 Major Concerns

There were no major concerns that required rejection of data

4.3 Minor Concerns

Identified below are the minor quality control concerns that required qualification of the data Refer to Table 5 for the specific samples affected by each concern.

Reported results with a value greater than the method detection limit (MDL) and lower than the reporting limit (RL) were qualified with estimated values (J)

When the difference between the results of two GC columns is greater than 40%, the lower of the two values is reported and qualified (P) and if the value is an estimated value the result is qualified (JP) Estimated values are qualified (J)

5.0 CHLORINATED HERBICIDES

Samples were collected from eleven (11) groundwater monitoring locations and analyzed for chlorinated herbicides. Field duplicate samples were collected from wells BWMW-3M and BWMW-1M. Two equipment rinsate blanks and two field blanks were prepared and shipped for laboratory analysis. The samples collected for analysis are summarized in Table 1. The samples were submitted to Pace Analytical Services, Inc , were placed into one data package or SDG (60159337), and were prepared and analyzed using SW-846 Method 8151. Samples were validated in accordance with the functional guidelines. Results of the validation are summarized below

5.1 Data Quality Objectives

Precision Goals for laboratory and field precision were met.

Accuracy Goals for accuracy were met, except where noted below.

Sample Result Verification Sample results were supported in the raw data.

Detection Limits The detection limit goals were achieved for analyses, except where dilutions were required due to elevated levels of target analytes or matrix interference

Completeness The data packages were complete for requested analyses Seventeen (17) samples were reviewed in this data set A total of 153 groundwater results were reported of which all were deemed valid This results in a laboratory completeness of 100%, with an overall completeness of 100%

5.2 Major Concerns

There were no major concerns with the sample analyses to warrant rejection of data

5.3 Minor Concerns

Identified below are the minor quality control concerns that required qualification of the data. Refer to Table 6 for the specific samples affected by each concern.

Reported results with a value greater than the method detection limit (MDL) and lower than the reporting limit (RL) were qualified with estimated values (J).

6.0 INORGANICS

Samples were collected from eleven (11) groundwater monitoring locations and analyzed for inorganics Field duplicate samples were collected from wells BWMW-3M and BWMW-1M Two equipment rinsate blanks and two field blanks were prepared and shipped for laboratory analysis The samples collected for analysis are summarized in Table 1. The samples were submitted to Pace Analytical Service, Inc , were placed into one data package or SDG (60159337), and were prepared and analyzed using SW-846 methods 6010 and 7470. Samples were validated in accordance with the functional guidelines Results of the validation are summarized below.

6.1 Data Quality Objectives

Precision Goals for laboratory and field precision were met, except where noted below

Accuracy Goals for accuracy were met, except where noted below

Sample Result Verification: Sample results were supported in the raw data

Detection Limits The detection limit goals were achieved for analyses, except where detections were found in calibration blanks

Completeness: The data packages were complete for requested analyses Seventeen (17) samples were reviewed in this data set. A total of 170 groundwater results were reported of which all were deemed valid This results in a laboratory completeness of 100%; with an overall completeness of 100%.

6.2 Major Concerns

There were no major concerns that required rejection of data

6.3 Minor Concerns

Identified below are the minor quality control concerns that required qualification of the data. Refer to Table 7 for the specific samples affected by each concern.

Reported results with a value greater than the method detection limit (MDL) and lower than the reporting limit (RL) were qualified with estimated values (J)

When a compound was detected in a blank (i.e. method, field, rinsate) the five times (ten times for common lab contaminants) rule was applied to affected samples. Results greater than the method detection limit and below five or ten times the blank detection were qualified as non-detects (U)

7.0 GENERAL CHEMISTRY

Samples were collected from eleven (11) groundwater monitoring locations and analyzed for TOC and TDS Field duplicate samples were collected from wells BWMW-3M and BWMW-1M. Two equipment rinsate blanks and two field blanks were prepared and shipped for laboratory analysis The samples collected for analysis are summarized in Table 1. The samples were submitted to Pace Analytical Service, Inc., were placed into one data package or SDG (60159337), and were prepared and analyzed using SW-846 Method 5310C and 2540C Samples were validated in accordance with the functional guidelines Results of the validation are summarized below.

7.1 Data Quality Objectives

Precision Goals for laboratory and field precision were met.

Accuracy Goals for accuracy were met

Sample Result Verification: Sample results were supported in the raw data

Detection Limits: The detection limit goals were achieved for analyses

Completeness: The data packages were complete for requested analyses Seventeen (17) samples were reviewed in this data set A total of 34 groundwater results were reported of which all were deemed valid This results in a laboratory completeness of 100%; with an overall completeness of 100%.

7.2 Major Concerns

There were no major quality control concerns identified that required rejection of data.

7.3 Minor Concerns

Identified below are the minor quality control concerns that required qualification of the data. Refer to Table 8 for the specific samples affected by each concern

Reported results with a value greater than the method detection limit (MDL) and lower than the reporting limit (RL) were qualified with estimated values (J)

8.0 SUMMARY

Golder validated the data collected during the December 2013 sampling event from Solutia Sauget Site R in general accordance with USEPA functional guidelines Although some data required qualifications due to quality control criteria that were not achieved, the data were deemed usable. Where a positive result was qualified as estimated, the analyte should be considered present Similarly, a result that was qualified as an estimated reporting limit should be considered not present for the purposes of this program, although the limit itself may not be precise The completeness for the entire data set was 100%.

TABLE 1

SAMPLE POINT IDENTIFICATIONS AND SDG NUMBERS
GROUNDWATER MIGRATION CONTROL SYSTEM
SAUGET AREA 2 SUPERFUND SITE
DECEMBER 2013 GROUNDWATER SAMPLING EVENT

SAMPLE POINT I.D.	DATE SAMPLED	VOLATILE ORGANICS	SEMIVOLATILE ORGANICS	PESTICIDES	HERBICIDES	TOTAL INORGANICS	GENERAL CHEMISTRY
Groundwater Samples							
BWMW-1S	12/12/2013	60159337	60159337	60159337	60159337	60159337	60159337
BWMW-1M	12/12/2013	60159337	60159337	60159337	60159337	60159337	60159337
BWMW-1D	12/12/2013	60159337	60159337	60159337	60159337	60159337	60159337
BWMW-2S	12/11/2013	60159337	60159337	60159337	60159337	60159337	60159337
BWMW-2M	12/11/2013	60159337	60159337	60159337	60159337	60159337	60159337
BWMW-2D	12/11/2013	60159337	60159337	60159337	60159337	60159337	60159337
BWMW-3S	12/10/2013	60159337	60159337	60159337	60159337	60159337	60159337
BWMW-3M	12/10/2013	60159337	60159337	60159337	60159337	60159337	60159337
BWMW-3D	12/10/2013	60159337	60159337	60159337	60159337	60159337	60159337
BWMW-4S	NS	NS	NS	NS	NS	NS	NS
BWMW-4M	12/9/2013	60159337	60159337	60159337	60159337	60159337	60159337
BWMW-4D	12/9/2013	60159337	60159337	60159337	60159337	60159337	60159337
Field Duplicates							
DUP-1	12/10/2013	60159337	60159337	60159337	60159337	60159337	60159337
DUP-2	12/11/2013	60159337	60159337	60159337	60159337	60159337	60159337
Field Blanks							
FIELD BLANK 1	12/10/2013	60159337	60159337	60159337	60159337	60159337	60159337
FIELD BLANK 2	12/11/2013	60159337	60159337	60159337	60159337	60159337	60159337
Trip Blanks							
TRIP BLANK	12/10/2013	60159337	60159337	60159337	60159337	60159337	60159337
TRIP BLANK	12/11/2013	60159337	60159337	60159337	60159337	60159337	60159337
Rinsate Blanks							
RINSATE BLANK-1	12/11/2013	60159337	60159337	60159337	60159337	60159337	60159337
RINSATE BLANK-2	12/12/2013	60159337	60159337	60159337	60159337	60159337	60159337

Notes:

1. General Chemistry included total organic carbon (TOC) and total dissolved solids (TDS).
2. MS/MSD performed on sample BWMW-3D.
3. NS - Not sampled due to well being dry.

Checked by: LAB 4/24/14
Reviewed by: AWD 4/30/14

TABLE 2

VALIDATION QUALIFIER DEFINITIONS
GROUNDWATER MIGRATION CONTROL SYSTEM
SAUGET AREA 2 SUPERFUND SITE
DECEMBER 2013 GROUNDWATER SAMPLING EVENT

Organics

U - The analyte was analyzed for but not detected.
J - The analyte was detected and the result is considered an estimated value.
D - The analyte was detected at a dilution.
JD - Compound analyzed at a dilution; result is considered an estimated value.
JP - The difference between the values of the GC columns was greater than 40% and the lower value is reported. The result is considered an estimated value.
P - The difference between the values of the GC columns was greater than 40% and the lower value is reported.

Inorganics

U - The analyte was analyzed for but not detected.
considered an estimated value.
J - The analyte was detected and the result is considered an estimated value.

Checked by: LAB 4/24/14
Reviewed by: AWD 4/30/14

TABLE 3

VOLATILE ORGANIC COMPOUNDS DATA QUALIFIER SUMMARY
GROUNDWATER MIGRATION CONTROL SYSTEM
SAUGET AREA 2 SUPERFUND SITE
DECEMBER 2013 GROUNDWATER SAMPLING EVENT

DATE. DECEMBER 2013 **Project No. : 063-9678**
PROJECT NAME: Solutia Site R
MATRIX: Groundwater
ANALYSIS: VOC
SAMPLE DELIVERY GROUP NUMBERS: 60159337
REVIEWER: Lori Bindner

QUALITY CONTROL ISSUE	COMPOUND(S)	QUALIFIER	SAMPLES AFFECTED
Reported result greater than the method detection limit and lower than the reporting limit	Acetone, Benzene, Carbon disulfide, Ethylbenzene, Methylene chlonde, Chloromethane, Cis-1-2-Dichloroethene, 1,1,2-Trichloroethane, Vinyl chlonde, and Toluene	J	BWMW-1M, BWMW-1D, BWMW-2M, BWMW-2D, BWMW-3S, BWMW-3D, BWMW-4M, RB-1, RB-2, DUP-1, DUP-2, TRIP BLANK (12/10/2013), and TRIP BLANK (12/11/13)
Detection in a blank (5X or 10X rule)	Benzene, Carbon disulfide and Methylene chlonde	U	BWMW-2S, BWMW-3S, MWMW-4D, and TRIP BLANK (12/11/13)
Compounds analyzed at a dilution	Benzene and Chlorobenzene	D	DUP-2
Analyte recovery in the laboratory control sample was outside QC limits	Benzene	J	BWMW-1S, BWMW-1M, BWMW-1D, BWMW-2S, BWMW-2M, and BWMW-2D

Checked by LAB 4/24/14
Reviewed by AWD 4/30/14

TABLE 4

SEMI-VOLATILE ORGANIC COMPOUNDS DATA QUALIFIER SUMMARY
GROUNDWATER MIGRATION CONTROL SYSTEM
SAUGET AREA 2 SUPERFUND SITE
DECEMBER 2013 GROUNDWATER SAMPLING EVENT

DATE: DECEMBER 2013 **Project No. : 063-9678**
PROJECT NAME: Solutia Site R
MATRIX: Groundwater
ANALYSIS: SVOC
SAMPLE DELIVERY GROUP NUMBERS: 60159337
REVIEWER: Lori Bindner

QUALITY CONTROL ISSUE	COMPOUND(S)	QUALIFIER	SAMPLES AFFECTED
Reported result greater than the method detection limit and lower than the reporting limit	Naphthalene, 4-Chloroaniline, 3&4 Methylphenol, 2-Chlorophenol, 1,4-Dichlorobenzene, 1,3-Dichlorobenzene, 1,2-Dichlorobenzene, and 4-Bromophenylphenylether	J	BWMW-1S, BWMW-1M, BWMW-1D, BWMW-2S, BWMW-2M, BWMW-2D, BWMW-3S, BWMW-3M, BWMW-3D, BWMW-4M, DUP-1, DUP-2, FB-1, and RB-1
Two or more surrogates diluted out of sample	4-Chloroaniline, 1,4-Dichlorobenzene, 1,3-Dichlorobenzene, 1,2-Dichlorobenzene, and Naphthalene	J	BWMW-2D
Detection in a blank (5X rule)	4-Chloroaniline	U	BWMW-3S
Compounds analyzed at a dilution	4-Chloroaniline, 2-Chlorophenol, 1,2-Dichlorobenzene, and 1,4-Dichlorobenzene	D/JD	BWMW-1S, BWMW-1M, BWMW-2M, BWMW-2D, BWMW-3M, BWMW-3D, BWMW-4D, DUP-1, and DUP-2

Checked by LAB 4/24/14
Reviewed by AWD 4/30/14

TABLE 5

CHLORINATED PESTICIDES DATA QUALIFIER SUMMARY
GROUNDWATER MIGRATION CONTROL SYSTEM
SAUGET AREA 2 SUPERFUND SITE
DECEMBER 2013 GROUNDWATER SAMPLING EVENT

DATE: DECEMBER 2013 **Project No. : 063-9678**
PROJECT NAME: Solutia Site R
MATRIX: Groundwater
ANALYSIS: Chlorinated Pesticides
SAMPLE DELIVERY GROUP NUMBERS: 60159337
REVIEWER: Lori Bindner

QUALITY CONTROL ISSUE	COMPOUND(S)	QUALIFIER	SAMPLES AFFECTED
Reported result greater than the method detection limit and lower than the reporting limit	Endosulfan I, beta-BHC and Heptachlor epoxide	J	BWMW-1M, BWMW-2M, BWMW-2D, DUP-1, and DUP-2
The difference between the values of the GC columns was greater than 40% and lower value reported	Endosulfan I, beta-BHC and Heptachlor epoxide	P/JP	BWMW-1M, BWMW-2M, BWMW-2D, and DUP-1

Checked by LAB 4/24/14
Reviewed by AWD 4/30/14

TABLE 6

CHLORINATED HERBICIDES DATA QUALIFIER SUMMARY
GROUNDWATER MIGRATION CONTROL SYSTEM
SAUGET AREA 2 SUPERFUND SITE
DECEMBER 2013 GROUNDWATER SAMPLING EVENT

DATE: DECEMBER 2013 **Project No. : 063-9678**
PROJECT NAME: Solutia Site R
MATRIX: Groundwater
ANALYSIS: Chlorinated Herbicides
SAMPLE DELIVERY GROUP NUMBERS: 60159337
REVIEWER: Lori Bindner

QUALITY CONTROL ISSUE	COMPOUND(S)	QUALIFIER	SAMPLES AFFECTED
Reported result greater than the method detection limit and lower than the reporting limit	2,4-D	J	BWMW-1S

Checked by LAB 4/24/14
Reviewed by AWD 4/30/14

TABLE 7

METALS DATA QUALIFIER SUMMARY
GROUNDWATER MIGRATION CONTROL SYSTEM
SAUGET AREA 2 SUPERFUND SITE
DECEMBER 2013 GROUNDWATER SAMPLING EVENT

DATE: DECEMBER 2013 **Project No. : 063-9678**
PROJECT NAME: Solutia Site R
MATRIX: Groundwater
ANALYSIS: Metals
SAMPLE DELIVERY GROUP NUMBERS: 60159337
REVIEWER: Lori Bindner

QUALITY CONTROL ISSUE	COMPOUND(S)	QUALIFIER	SAMPLES AFFECTED
Reported result greater than the method detection limit and lower than the reporting limit	Arsenic, Chromium, Copper, Lead, and Nickel	J	BWMW-1S, BWMW-1M, BWMW-1D, BWMW-2S, BWMW-2M, BWMW-2D, BWMW-3S, BWMW-3M, BWMW-3D, BWMW-4M, BWMW-4D, RB-1, RB-2, DUP-1, and DUP-2
Detection in a blank (5X rule)	Chromium	U	BWMW-1S

Checked by LAB 4/24/14
Reviewed by AWD 4/30/14

TABLE 8

GENERAL CHEMISTRY DATA QUALIFIER SUMMARY
GROUNDWATER MIGRATION CONTROL SYSTEM
SAUGET AREA 2 SUPERFUND SITE
DECEMBER 2013 GROUNDWATER SAMPLING EVENT

DATE: DECEMBER 2013 **Project No. : 063-9678**
PROJECT NAME: Solutia Site R
MATRIX: Groundwater
ANALYSIS: TDS and TOC
SAMPLE DELIVERY GROUP NUMBERS: 60159337
REVIEWER: Lori Bindner

QUALITY CONTROL ISSUE	COMPOUND(S)	QUALIFIER	SAMPLES AFFECTED
Reported result greater than the method detection limit and lower than the reporting limit	TOC	J	RB-2

Checked by LAB 4/24/14
Reviewed by AWD 4/30/14